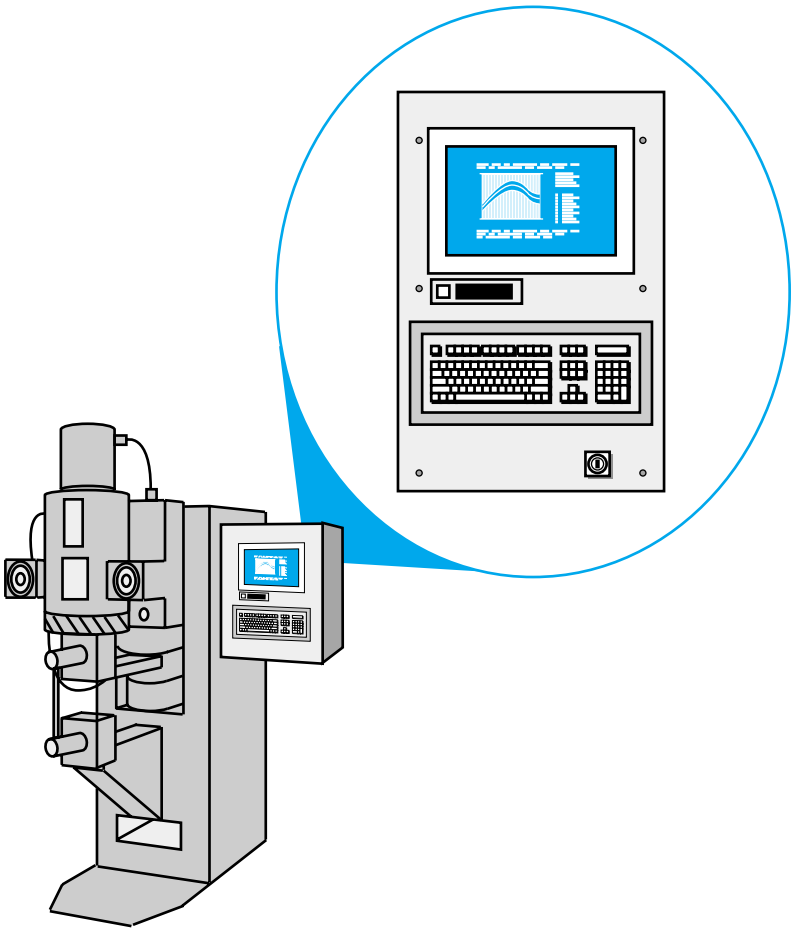
WeldComputer™ Resistance Welder Adaptive Control

Computer-Controlled Resistance Welding Saves Energy and Improves Quality

The invention is a sophisticated computer-controlled resistance welding system designed particularly for resistance spot welding. Welding is one of the most common manufacturing operations, and resistance welding is one of the oldest and most common ways of welding. Until recently, however, resistance welding—a function of physical electrode force, material thickness and resistance, and time, frequency, and voltage of the electric current—was more of an art than a science. With help from the Inventions and Innovation Program, WeldComputer has improved the science of resistance welding and made the technology available to general commercial industries. The control system had previously proven effective for quality improvement and energy savings in the aerospace and defense contract industries, but was considered too expensive for more general commercial operations.

The WeldComputer system consists of a programmable power controller, line voltage monitoring and compensation equipment, and other sensors and compensation equipment that monitor the welding process and make real-time adjustments. The technology is less energy intensive than other metal joining methods through precise control of electric current. The new L-Series systems are affordable and have tremendous potential for use in the automotive, appliance, and other industries.



The WeldComputer System

Overview

- Invented and commercialized by WeldComputer Corporation
- Commercialized in 1995
- Captured significant percentage of niche market
- More than 100 controllers have been installed worldwide

Applications

Used in the aerospace, defense, automotive, and appliance industries, and in general commercial manufacturing areas

Capabilities

- Performs real-time diagnostics during each weld.
- Automatically adjusts welding voltage to remedy variations detected as the weld is made.
- Allows more effective use of resistance welding, which is less expensive, faster, more reliable, and less energy intensive than other joining methods.
- Documents the integrity of each weld.

Benefits

Energy Savings

Reduces energy use for resistance welding by precise control of weld power.

Productivity

Productivity gains of 90% to 200% due to decreased welding times and a 55% reduction in scrap material costs due to improved welding accuracy.

Product Quality

Performs real-time diagnostics during each weld, precisely regulates voltage to ensure a high-quality process, and documents weld integrity.

Profitability

Reduces the number of rejected welds and eliminates the need for destructive weld testing, thus saving money, materials, and energy. Also allows more effective use of resistance welding, which is less expensive, faster, more reliable, and less energy intensive than other joining methods.

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